

even in the region of the tropics, that this limit attains its greatest elevation above the level of the sea. The phenomenon of which we are treating is extremely complicated, depending on the general relations of temperature and humidity, and on the form of mountains. On submitting these relations to the test of special analysis, as we may be permitted to do from the number of determinations that have recently been made,* we shall find that the controlling causes are the differences in the temperature of different seasons of the year; the direction of the prevailing winds and their relations to the land and sea; the degree of dryness or humidity in the upper strata of the air; the absolute thickness of the accumulated masses of fallen snow; the relation of the snow-line to the total height of the mountain; the relative position of the latter in the chain to which it belongs, and the steepness of its declivity; the vicinity of other summits likewise perpetually covered with snow; the expansion, position, and elevation of the plains from which the snow-mountain rises as an isolated peak or as a portion of a chain; whether this plain be part of the sea-coast or of the interior of a continent; whether it be covered with wood or waving grass; and whether, finally, it consist of a dry and rocky soil, or of a wet and marshy bottom.

The snow-line which, under the equator in South America, attains an elevation equal to that of the summit of Mont Blanc in the Alps, and descends, according to recent measurements, about 1023 feet lower toward the northern tropic in the elevated plateaux of Mexico (in 19° north latitude), rises, according to Pentland, in the southern tropical zone ($14^{\circ} 30'$ to 18° south latitude), being more than 2665 feet higher in the maritime and western branch of the Cordilleras of Chili than under the equator near Quito on Chimborazo, Cotopaxi, and Antisana. Dr. Gillies even asserts that much further to the south, on the declivity of the volcano of Peuquenés (latitude 33°), he found the snow-line at an elevation of between 14,520 and 15,030 feet. The evaporation of the snow in the extremely dry air of the summer, and under a cloudless sky, is so powerful, that the volcano of Aconcagua, northeast of Valparaiso (latitude $32^{\circ} 30'$), which was found in the expedition of the Beagle to be more than 1400 feet higher than Chimborazo, was on one occasion seen free from snow.† In

* See my table of the height of the line of perpetual snow, in both hemispheres, from $71^{\circ} 15'$ north lat. to $53^{\circ} 54'$ south lat., in my *Asie Centrale*, t. iii., p. 360.

† Darwin, *Journal of the Voyages of the Adventure and Beagle*, p. 297.